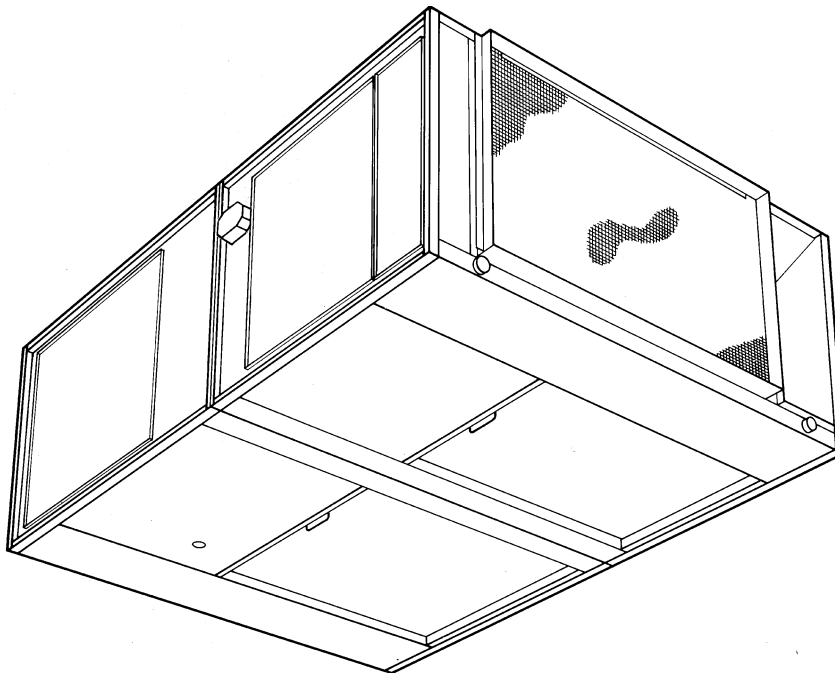




Product Data

ROOMTOP® 50AH Horizontal Indoor Single-Package Cooling Units

3 to 5 Nominal Tons



The 50AH single-package cooling units feature:

- compact design
- flexibility
- easy maintenance
- high quality and reliability
- quiet and efficient scroll compressor technology

Features/Benefits

All in one package — high cooling efficiency, installation convenience, ease of accessibility allow for time-saving maintenance.

Space and cost saving design

The Carrier 50AH Roomtop unit is specifically designed to provide building owners with truly out-of-sight cooling. The compact design and low silhouette enable it to fit easily and securely within the ceiling above the conditioned space. Single-package construction makes it easy to install with minimal time and cost.

Application flexibility

If desired for particular applications, the unit can also be installed as a split system with the condenser section mounted horizontally. Centrifugal fans permit ducting of both evaporator and condenser air.

Quiet operation

Commercial end users appreciate the extra comfort of quiet operation. Carrier engineers met the challenge by specifying heavy insulation, vibration-resistant construction and operating components that function at low noise levels, all of which keep system sound at a minimum level.

**ASHRAE
90.1
COMPLIANT**

Easy maintenance

When it comes to maintenance, the 50AH rates high in accessibility. Indoor location is ideal for the maintenance technician, and five access panels, easily removed, provide quick and convenient access to all components when needed. As an added plus, all required service/maintenance access can be from one side, allowing the unit to be located against a wall or ceiling plenum obstruction, an obvious space-saving idea.

Carrier quality and reliability

The Carrier 50AH Roomtop® units have much to offer the cost and efficiency-conscious commercial owner. Every unit is thoroughly run tested at the factory and equipped with safety controls designed to monitor and protect over the life of the unit.

Scroll compressor technology

Scroll compressors are designed for high efficiency and are internally spring mounted to minimize vibration noise. Each compressor is hermetically sealed against contamination to promote longer life and dependable operation. Scroll compressors are standard on all units.

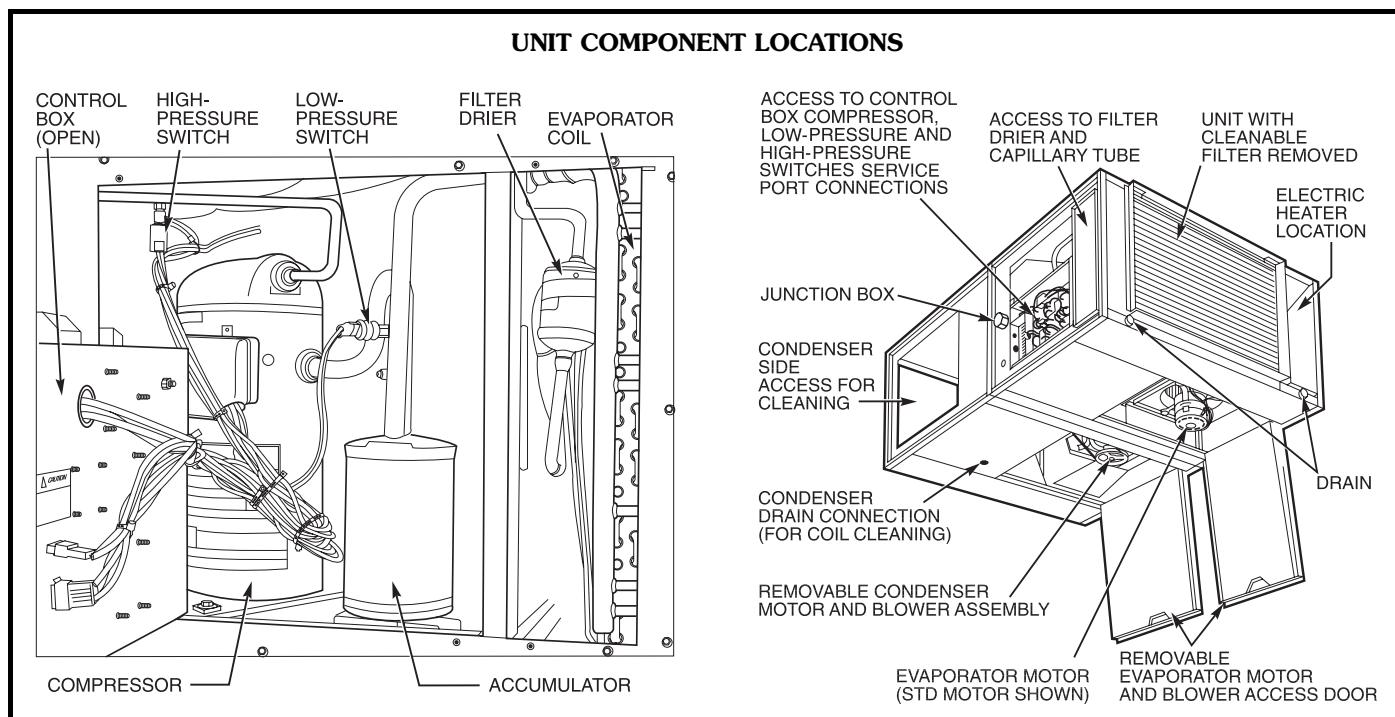
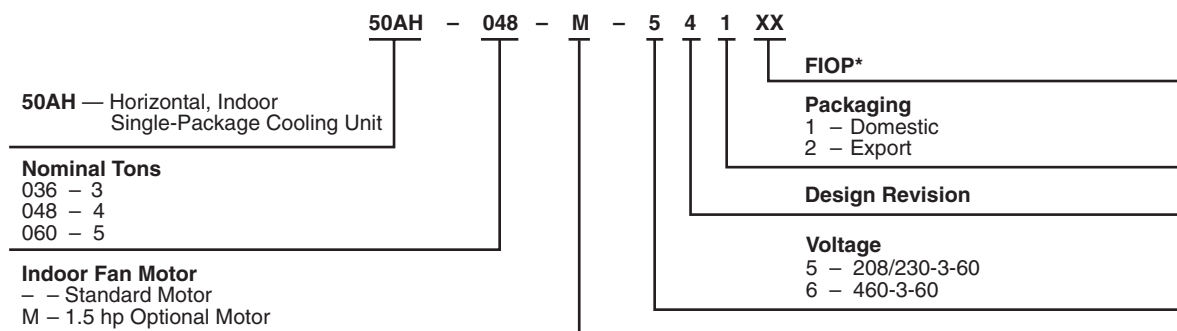


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Model number nomenclature



*FIOP — Factory-installed option, contact your Carrier representative for details.

Quality Assurance

Certified to ISO 9001:2000

ARI* capacity ratings

UNIT 50AH	V-PH-Hz	TOTAL kW	NET TOTAL COOLING CAP. (Btuh)	NOMINAL CFM	EER	SOUND RATING (dB)
036	208/230-3-60 460-3-60	4.3	36,000	1200	8.40 8.40	82
048	208/230-3-60 460-3-60	5.63	49,500	1600	8.80 8.80	82
060	208/230-3-60 460-3-60	6.9	58,500	2000	8.50 8.50	82

LEGEND

dB — Decibels
EER — Energy Efficiency Ratio

*Air-conditioning and Refrigeration Institute.

NOTES:

1. Ratings are at zero condenser air static and rated in accordance with ARI Standard 210.

2. $EER = \frac{NET\ CAPACITY\ (Btuh)}{TOTAL\ WATTS}$



Physical data



UNIT 50AH	036	048	060
OPERATING WEIGHT (lb) Base Unit, Evaporator/Condenser Section	480, 206/274	580, 250/330	590, 254/336
SHIPPING WEIGHT (lb)*	590	690	700
REFRIGERANT TYPE Operating Charge (lb)†	5.5	R-22 7.4	7.6
COMPRESSOR — TYPE Quantity...Model Oil (oz) HPS Setting (psig) Cutout Reset LPS Setting (psig) Cutout Reset	(1)...ZR34 42	Scroll (1)...SR48 70 426 ± 7 320 ± 20 27 ± 4 67 ± 7	(1)...ZR57 54
CONDENSATE DRAIN CONNECTION Size (in.)...Type	3/4...FPT		
CONDENSER COIL Size (L x H) (in.) Number of Rows...Fins/in.	40 x 16 4...17	Copper Tubes — Aluminum Fins 40 x 22 4...13.6	
CONDENSER FAN Nominal Cfm Maximum Rpm Blower Size (in.) Pulley Pitch Diameter (in.) Blower Motor (Variable) Motor Hp Motor Rpm	1350 1100 12 x 6 5.0 2.4-3.4 3/4 1725	Centrifugal — Belt Drive 2250 1500 12 x 9 6.0 1.9-2.9 1 1725	
EVAPORATOR COIL Size (L x H) (in.) Number of Rows...Fins/in.	34 x 16 4...15	Copper Tubes — Aluminum Fins 34 x 22 4...14.4	
EVAPORATOR AIR FAN (Standard) Nominal Cfm Max Rpm Blower Size (in.) Motor Hp (Rpm)	1200 1150 10 x 6 1/2 (1075)	Centrifugal — Direct Drive 1600 900/1050** 10 x 6 3/4 (1050)	
EVAPORATOR AIR FAN (Optional) Nominal Cfm Max Rpm Blower Size (in.) Motor Hp Motor Rpm Pulley Pitch Diameter (in.) Blower Motor (Variable)	Not Available		Centrifugal Belt Drive 1600 1300 10 x 8 1 1/2 1725 4.2 2.4-3.4
INDOOR-AIR FILTERS Number...Size (in.)	1...14 x 34 x 1	Factory-Supplied Cleanable Type 1...21 x 34 x 1	
INTERCONNECTING TUBING SIZE (in.)†† Hot Gas Liquid	1/2 3/8	1/2 3/8	1/2 3/8

LEGEND

HPS — High-Pressure Switch
LPS — Low-Pressure Switch

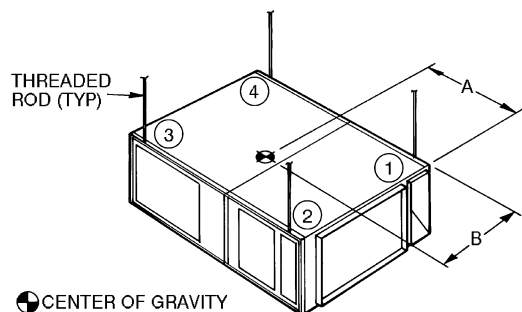
*Shipping weights include base unit plus packaging.

†If components are to be split, additional refrigerant will be needed.

**Two-speed motor.

††Use Type L copper only.

NOTE: If components are to be split, the maximum length of refrigerant tubing to be used is 50 equivalent ft, assuming components will be installed in same horizontal plane. If components are not to be installed in same horizontal plane, contact your Carrier representative for more information. For additional piping information, refer to Carrier System Design Manual, Part 3.



NOTE: Fasten threaded rods through holes in end frames. Use 2 rods on each side of unit for a total of 4.

CAUTION

All panels must be in place when rigging.

OPERATING WEIGHT DISTRIBUTION AND CENTER OF GRAVITY

UNIT 50AH	WEIGHT (lb/kg) OF CORNER				DIMENSIONS (ft-in./mm)	
	1	2	3	4	A	B
036	95/43	113/51	148/67	124/56	2-43/4/730	2-2 /660
048	112/51	143/65	183/83	142/64	2-5 /737	2-3 /686
060	114/52	143/65	186/84	147/67	2-43/4/730	2-23/4/679

Field-installed accessories



Thermostat and subbase — Attractive wall-mounted 24-v accessory provides precise temperature control. Automatic and manual changeover models available. A thermostat subbase is available that works with Cycle-LOC™ circuitry. If a safety device trips, compressor locks out and subbase warning light (LK OUT) alerts occupant.

Three models available: One stage cool/two stage heat; two stage cool/two stage heat; one stage cool/one stage heat.

Electric heaters — A wide range of models is available from 5 to 30 kW, 208, 240 and 480-v, 3-ph units. The heaters mount easily on 50AH discharge opening. The heater control box is accessible from the bottom of heater.

NOTE: Separate power source is required for all heaters.

Condensate pump — The condensate pump is used when the distance and slope to the nearest drain is far enough to prevent the natural drainage of unit. The pump

is mounted remotely from the unit and includes a signal light (field-installed) which illuminates when the reservoir rises beyond a certain level. The unit automatically shuts down when this reservoir level is achieved.

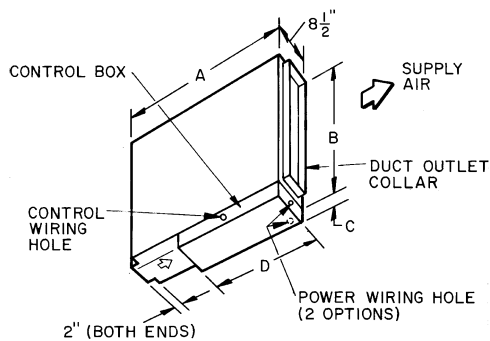
Head pressure control damper — This accessory is duct mounted and allows unit to mechanically cool down to 0° F.

Damper dimensions fit size 036 units.

NOTE: For use with 048 and 060 size units, ductwork from unit to damper must be reduced in size to fit damper dimensions.

Vibration isolators — Package of four isolators dampen any unit vibration so that vibrating sounds are not transmitted to building structure. Isolators are spring, ceiling type.

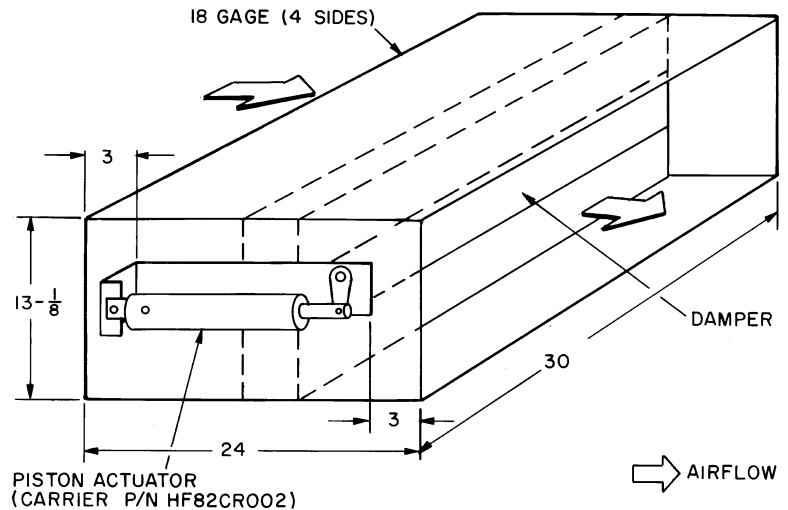
88EN ELECTRIC HEAT MODULE ACCESSORY



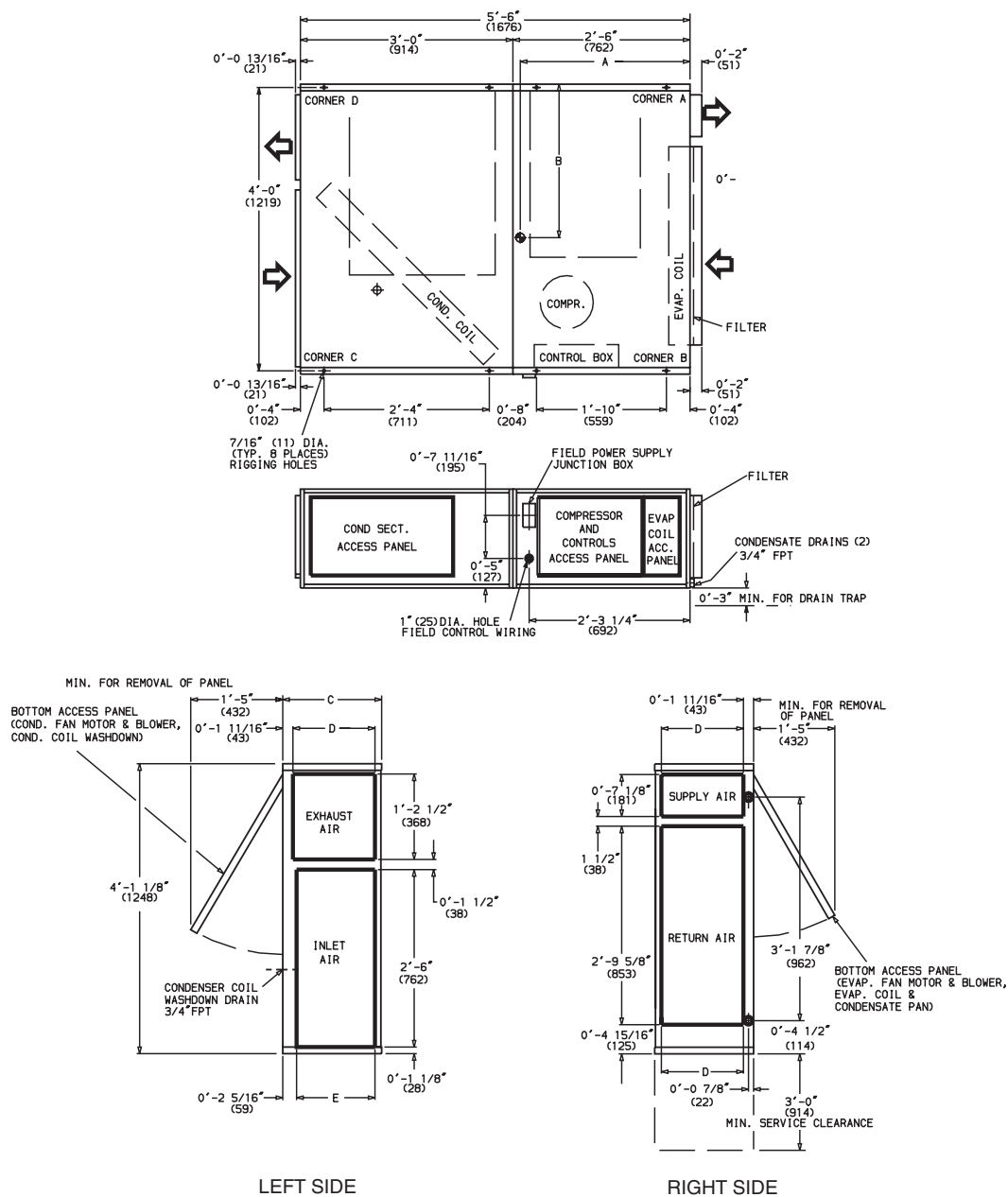
DIMENSIONS (in.)

UNIT 50AH	A	B	C	D	DUCT OPENING
036	13 1/2	16	2 1/2	8 1/2	7 1/8 x 14
048,060	24	21 3/4	3	19	7 1/8 x 20 7/8

HEAD PRESSURE CONTROL DAMPER (in.)



Dimensions



DIMENSIONS (ft-in.)

UNIT 50AH	A	B	C	D	E
036	2-4 ³ / ₄	2-2	1-5 ³ / ₄	1-2	1-1
048	2-5	2-3	1-11 ⁵ / ₈	1-8 ⁷ / ₈	1-7 ⁷ / ₈
060	2-4 ³ / ₄	2-2 ³ / ₄	1-11 ⁵ / ₈	1-8 ⁷ / ₈	1-7 ⁷ / ₈

Selection procedure (with example)



I Determine cooling requirements at design conditions.

Given:

Gross Cooling Capacity

Required (TC) 39,000 Btuh

Sensible Heat Capacity (SHC) 30,500 Btuh

Temperature of Air Entering Condenser 95 F

Temperature of Air Entering

Evaporator 80 F edb/67 F ewb

Evaporator Air Quantity. 1,200 cfm

External Static Pressure:

Condenser 0.50 in. wg

Evaporator (includes static pressure

drop of factory-supplied filter

of 0.06 in. wg). 0.20 in. wg

II Select unit based upon required cooling capacity.

Enter cooling capacity table at temperature of air entering condenser of 95 F. The 50AH036 unit at

1200 cfm and 67 F ewb will provide a Total Capacity (TC) of 44,200 Btuh and a Sensible Heat Capacity (SHC) of 31,300 Btuh. Since the entering air is 80 F edb, an SHC correction is not required.

III Determine evaporator fan performance.

Enter Evaporator Fan Performance table at 1200 cfm and 50AH036 data. The external static pressure shown (0.23 in. wg) will exceed the 0.20 in. wg required. The fan motor will require 0.52 kW.

IV Determine condenser fan performance and motor pulley setting requirements.

Enter Condenser Fan Performance table at the selected cfm and required static pressure of 0.50 in. wg. The fan motor will require 0.73 kW and the motor pulley should be set at 2 turns open at 1350 cfm of condenser air required.

Performance data



GROSS COOLING CAPACITIES

50AH036										
Temp Air Ent Condenser (F)		Evaporator Air Quantity — Cfm/BF								
		900/0.01			1050/0.01			1200/0.02		
		Evaporator Air Ewb Temp (F)								
		72	67	62	72	67	62	72	67	62
85	TC	45.0	41.1	37.3	45.8	42.3	38.6	46.5	43.4	39.8
	SHC	22.5	27.7	32.6	23.6	29.9	35.6	24.6	32.0	38.3
	kW	3.19	3.07	2.96	3.22	3.11	3.00	3.25	3.14	3.04
95	TC	43.0	38.8	34.3	44.1	40.1	35.8	45.0	44.2	37.4
	SHC	21.8	26.8	31.1	23.1	29.1	34.1	24.4	31.3	36.8
	kW	3.42	3.28	3.15	3.46	3.33	3.20	3.49	3.37	3.25
105	TC	40.4	35.8	29.6	41.6	37.1	31.3	42.6	38.2	33.2
	SHC	20.9	25.6	28.5	22.3	27.9	30.8	23.7	30.2	33.2
	kW	3.63	3.48	3.38	3.68	3.53	3.44	3.73	3.58	3.49
115	TC	37.7	30.6	25.8	38.7	31.6	37.8	39.7	32.8	29.7
	SHC	19.9	23.3	25.8	21.3	25.5	27.8	22.7	27.8	29.7
	kW	3.85	3.71	3.59	3.90	3.76	3.67	3.94	3.80	3.73

50AH048													
Temp Air Ent Condenser (F)		Evaporator Air Quantity Cfm/BF											
		1200/0.06				1600/0.08				2000/0.10			
		Evaporator Air Ewb Temp (F)											
		72	67	62	57	72	67	62	57	72	67	62	57
85	TC	56.0	52.1	47.9	44.4	57.7	54.5	50.6	49.6	59.4	56.0	52.7	52.3
	SHC	27.8	34.8	41.6	44.4	30.2	39.6	48.0	49.6	32.8	43.9	52.5	52.3
	kW	3.77	3.68	3.59	3.53	3.81	3.74	3.66	3.64	3.85	3.77	3.70	3.69
95	TC	54.0	50.1	45.7	42.4	55.7	52.3	48.6	47.3	57.4	53.8	51.0	50.9
	SHC	27.1	34.0	40.4	42.4	29.6	38.8	47.0	47.3	32.4	43.2	50.9	50.9
	kW	4.21	4.11	4.01	3.95	4.25	4.18	4.09	4.07	4.31	4.21	4.15	4.15
105	TC	51.8	47.9	42.3	40.2	53.6	50.0	45.1	45.0	54.6	51.4	48.9	48.6
	SHC	26.3	33.1	38.8	40.2	29.0	38.0	44.8	45.0	31.3	42.4	48.9	48.6
	kW	4.69	4.58	4.45	4.40	4.75	4.65	4.54	4.53	4.77	4.69	4.63	4.63
115	TC	49.5	45.5	38.6	37.7	51.2	47.6	41.9	42.1	52.2	49.1	45.8	45.8
	SHC	25.5	32.2	37.0	37.7	28.3	27.3	41.8	42.1	30.7	42.0	45.8	45.8
	kW	5.21	5.09	4.92	4.89	5.27	5.17	5.03	5.03	5.30	5.23	5.14	5.14

50AH060										
Temp Air Ent Condenser (F)		Evaporator Air Quantity — Cfm/BF								
		1500/0.06			2000/0.09			2250/0.10		
		Evaporator Air Ewb Temp (F)								
		72	67	62	72	67	62	72	67	62
85	TC	64.8	58.5	52.9	68.0	61.5	56.3	68.9	62.5	58.0
	SHC	33.2	41.1	48.5	37.2	47.3	55.7	38.9	50.0	57.7
	KW	4.49	4.29	4.13	4.59	4.83	4.22	4.62	4.41	4.27
95	TC	61.9	55.7	50.2	65.1	58.7	54.0	66.1	59.7	55.8
	SHC	32.3	40.1	47.3	36.4	46.5	54.0	38.2	49.3	55.8
	KW	4.94	4.72	4.57	5.04	4.81	4.67	5.07	4.84	4.72
105	TC	58.5	52.4	47.2	61.5	55.2	51.4	62.6	56.3	53.3
	SHC	31.1	38.8	45.8	35.2	45.2	51.4	37.1	48.1	58.2
	KW	5.41	5.20	5.04	5.51	5.28	5.16	5.55	5.32	5.22
115	TC	54.9	49.0	44.1	57.8	51.7	48.7	58.7	52.6	50.4
	SHC	29.8	37.5	44.0	34.0	43.9	48.7	35.9	46.7	50.4
	KW	5.93	5.72	5.56	6.04	5.80	5.70	6.07	5.83	5.75

LEGEND

BF	—	Bypass Factor
edb	—	Entering dry-bulb
Ewb	—	Entering Wet-Bulb
kW	—	Compressor Motor Power Input (kilowatts)
SHC	—	Gross Sensible Heat Capacity (1000 Btuh)
TC	—	Gross Total Cooling Capacity (1000 Btuh)

NOTES:

- Performance based on nominal condenser airflow listed in physical data table on page 4.
- SHC is based on 80 F db temperature of air entering the coil.
Below 80 F db, subtract (corr factor x cfm) from SHC.
Above 80 F db, add (corr factor x cfm) to SHC.

BYPASS FACTOR (BF)	ENTERING AIR DRY-BULB TEMPERATURE (F)					
	79	78	77	76	75	Under 75
	81	82	83	84	85	Over 85
Correction Factor						
.025	1.07	2.12	3.19	4.25	5.32	Use formula shown below
.05	1.04	2.07	3.11	4.14	5.18	
.10	.98	1.96	2.94	3.92	4.90	
.20	.87	1.74	2.62	3.49	4.36	
.30	.76	1.53	2.29	3.05	3.82	
.35	.71	1.42	2.13	2.83	3.54	

Correction Factor = $1.10 \times (1 - BF) \times (edb - 80)$

The following formulas may be used:

$$t_{ldb} = t_{edb} - \frac{\text{sensible capacity (Btuh)}}{1.10 \times \text{cfm}}$$

t_{lwb} = Wet-bulb temperature corresponding to enthalpy of air leaving evaporator coil (h_{lwb}).

$$h_{lwb} = h_{ewb} - \frac{\text{total capacity (Btuh)}}{4.5 \times \text{cfm}}$$

Where:

h_{ewb} = Enthalpy of air entering evaporator coil



EVAPORATOR FAN PERFORMANCE

CFM	UNIT SIZE — 50AH					
	036		048*		060*	
	ESP	Fan kW	ESP	Fan kW	ESP	Fan kW
600	—	—	—	—	—	—
700	—	—	—	—	—	—
800	—	—	—	—	—	—
900	.69	.44	—	—	—	—
1000	.57	.46	—	—	—	—
1100	.42	.49	1.10	.45	1.11	.52
1200	.23	.52	1.01	.49	1.045	.55
1300	—	—	.90	.51	.97	.57
1400	—	—	.79	.55	.88	.59
1500	—	—	.67	.58	.78	.62
1600	—	—	.54	.61	.67	.64
1700	—	—	.39	.64	.53	.67
1800	—	—	.22	.67	.52	.70
1900	—	—	.03	.70	.40	.74
2000	—	—	—	—	.28	.78

LEGEND

ESP — External Static Pressure (in. wg)
kW — Total Fan Motor Power Input (kilowatts)

*Standard direct drive indoor (evaporator) fan motor (IFM). For optional belt drive IFM performance, see table below.

NOTES:

1. Above fan performance is based on wet coil and deducted casing losses, and clean factory-installed permanent cleanable filter.

2. Evaporator fans are direct drive (except 048, 060 special order evaporator-fan motor option). Refer to Belt Drive Evaporator Fan Performance table below.

3. Interpolation is permissible, do not extrapolate.

4. For units installed with accessory electric heaters, see Electric Heater Static Pressure Drop table for additional performance losses.

BELT DRIVE EVAPORATOR FAN PERFORMANCE (Special Order Only, Pricing and ordering on related price pages.)

CFM	UNIT SIZE — 50AH			
	048		060	
	ESP	Fan kW	ESP	Fan kW
1800	—	—	—	—
1850	—	—	—	—
1900	—	—	—	—
1950	.81	1.03	—	—
2000	.72	1.05	—	—
2050	.63	1.07	—	—
2100	.55	1.08	1.02	1.17
2150	.47	1.11	.93	1.21
2200	.42	1.14	.84	1.24
2250	.34	1.17	.75	1.27

LEGEND

ESP — External Static Pressure (in. wg)
kW — Total Fan Power Motor Input (kilowatts)

NOTE: Pulley setting must be adjusted to limit cfm to 450 cfm/ton *maximum*. Unit operation beyond that limit may result in blow-off and condensate problems.

Performance data (cont)



CONDENSER FAN PERFORMANCE

UNIT 50AH	COND CFM	EXTERNAL STATIC PRESSURE (in. wg)													
		0.0		0.1		0.2		0.3		0.4		0.5		0.6	
		Turns	kW	Turns	kW	Turns	kW	Turns	kW	Turns	kW	Turns	kW	Turns	kW
036	1650	2	.84	—	—	—	—	—	—	—	—	—	—	—	—
	1600	—	—	2	.82	—	—	—	—	—	—	—	—	—	—
	1550	—	—	—	—	2	.80	—	—	—	—	—	—	—	—
	1500	3	.72	—	—	—	—	2	.78	1	.84	—	—	—	—
	1450	4	.63	3	.70	—	—	—	—	2	.76	1	.83	—	—
	1400	—	—	4	.61	3	.68	—	—	—	—	—	—	1	.81
	1350	5	.51	—	—	—	—	3	.67	—	—	2	.73	—	—
048	1300	—	—	5	.50	4	.57	—	—	3	.65	—	—	2	.71
	2700	2	.90	—	—	—	—	—	—	—	—	—	—	—	—
	2600	—	—	2	.87	—	—	—	—	—	—	—	—	—	—
	2550	3	.81	—	—	—	—	—	—	—	—	—	—	—	—
	2450	—	—	3	.77	2	.83	1	.89	—	—	—	—	—	—
	2350	—	—	—	—	—	—	2	.80	1	.86	—	—	—	—
	2300	4	.68	—	—	3	.74	—	—	—	—	0	.90	—	—
060	2200	—	—	4	.66	—	—	—	—	2	.77	1	.82	0	.86
	3100	3	1.34	—	—	—	—	—	—	—	—	—	—	—	—
	3000	—	—	3	1.32	—	—	—	—	—	—	—	—	—	—
	2900	—	—	—	—	—	—	2	1.39	—	—	—	—	—	—
	2850	4	1.11	—	—	3	1.24	—	—	—	—	—	—	—	—
	2750	—	—	4	1.07	—	—	—	—	2	1.32	—	—	—	—
	2700	—	—	—	—	—	—	3	1.17	—	—	—	—	—	—
	2650	—	—	—	—	—	—	—	—	—	—	—	—	1	1.37
	2600	5	.95	—	—	4	1.01	—	—	—	—	2	1.26	—	—
	2550	—	—	—	—	—	—	—	—	3	1.12	—	—	—	—
	2500	—	—	5	.92	—	—	—	—	—	—	—	—	—	—
	2450	—	—	—	—	—	—	4	.97	—	—	—	—	2	1.21
	2400	—	—	—	—	5	.90	—	—	—	—	3	1.08	—	—

LEGEND

COND — Condenser
kW — Total Fan Motor Power Input (kilowatts)

NOTES:

1. Above fan performance is based upon coil and deducted casing losses only.
2. External static pressure (ESP) is measured in inches water gage (in. wg).
3. Interpolation is permissible. Do not extrapolate.

4. Minimum one turn open of motor pulley is required on unit sizes 036 and 060.
5. Number of turns open applies to field setting of motor pulley.
6. Factory setting as follows: 036, 4 turns open; 048, 2 turns open; 060, 5 turns open.
7. Care should be taken when hoods and/or louvers are installed to avoid condenser air recirculation.

ELECTRIC HEATER STATIC PRESSURE DROP (in. wg)

ELECTRIC HEATER UNIT 88EN	UNIT 50AH	MIN CFM	UNIT CFM									
			600	800	1000	1200	1400	1600	1800	2000	2200	
0500CA01	036 1-stage heat	400	.02	.04	.06	.10	—	—	—	—	—	—
0075CA01		510	.03	.06	.10	.16	—	—	—	—	—	—
0115CA01		620	.04	.08	.13	.19	—	—	—	—	—	—
0075EA01 1150EA01		320 720										
0100EA01 0150EA01	048, 060 2-stage heat	970 1240	—	—	—	.04	.06	.08	.12	.15	.17	
0200EA01 0300EA01 0300CA01		1350 1220 1220	—	—	—	.08	.11	.14	.18	.22	.26	
0100FA01 0150FA01		1130 1360	—	—	—	.04	.06	.08	.12	.15	.17	
0200FA01 0300FA01		1350 1270	—	—	—	.08	.11	.14	.18	.22	.26	

NOTE: Above electric heaters are *not* UL (Underwriters' Laboratories) or CSA (Canadian Standards Association) listed for use with optional high-static evaporator-fan motor (048, 060 units only).

Controls

Operating sequence

Cooling — When the thermostat calls for cooling, the indoor (evaporator) fan relay is energized and starts the evaporator fan. Compressor contactor is energized to start compressor and condenser fan (up to a 5-minute delay on single-phase units). When room thermostat is satisfied, the evaporator fan, compressor, and condenser fan shut off.

Continuous fan operation — The thermostat can be set for continuous operation by setting the fan switch to ON.

Electrical data



UNIT 50AH	V-PH (60 Hz)	VOLTAGE RANGE		COMPRESSOR		FAN MOTORS				POWER SUPPLY	
		Min	Max	RLA	LRA	Evaporator		Condenser		Min Ckt Amps	MOCP Amps
						Hp	FLA	Hp	FLA		
036	208/230-3	187	254	10.3	77	.50	3.20	.75	3.93	19.9	25
	460-3	414	508	5.1	40	.50	1.50	.75	1.97	8.9	15
048	208/230-3	187	254	15.5	105	.75	4.00	1.0	3.93	27.3	35
	460-3	414	508	7.4	55	.75	2.15	1.0	1.97	13.4	20
048*	208/230-3	187	254	15.5	105	1.5	5.60	1.0	3.93	28.9	35
	460-3	414	508	7.4	55	1.5	2.80	1.0	1.97	16.3	20
060	208/230-3	187	254	17.3	123	.75	4.00	1.5	4.82	30.4	40
	460-3	414	508	9.0	62	.75	2.15	1.5	2.41	15.8	20
060*	208/230-3	187	254	17.3	123	1.5	5.60	1.5	4.82	32.0	40
	460-3	414	508	9.0	62	1.5	2.80	1.5	2.41	16.0	20

LEGEND

HACR — Heating, Air Conditioning, and Refrigeration
Hp — Horsepower
FLA — Full Load Amps
LRA — Locked Rotor Amps
MOCP — Maximum Overcurrent Protection (HACR breaker)
RLA — Rated Load Amps



*Optional evaporator-fan motor nameplate data.

ELECTRIC HEATER DATA

ELECTRIC HEATER UNIT 88EN	USED WITH UNIT 50AH	V-PH (60 Hz)	CAP. (kW)	BRANCH CIRCUIT		
				Heater Amps	MCA	MOCP (Amps)
0050CA01 0075CA01 0115CA01	036 1-Stage Heat	240-1	5.0	20.8	26.0	30
		240-1	7.5	31.3	39.1	40
		240-1	11.5	47.9	59.9	60
0075EA01	036 1-Stage Heat	208-3	5.6	15.6	19.5	20
		240-3	7.6	18.0	22.6	25
1150EA01	036 1-Stage Heat	208-3	11.3	31.2	39.0	40
		240-3	15.0	36.1	45.1	50
0100EA01	048, 060 2-Stage Heat	208-3	7.5	20.8	26.0	30
		240-1*	10.0	41.7	52.1	60
		240-3	10.0	24.1	30.1	35
0150EA01	048, 060 2-Stage Heat	208-3	11.3	31.2	39.0	40
		240-1*	15.0	62.5	78.1	80
		240-3	15.0	36.1	45.1	50
0200EA01	048, 060 2-Stage Heat	208-3	15.0	41.7	52.1	60
		240-1*	20.0	83.3	104.2	110
		240-3	20.0	46.9	58.6	60
0300EA01	048, 060 2-Stage Heat	208-3	22.5	62.5	78.2	80
		240-3	30.0	72.2	90.2	100
0300CA01	048, 060 2-Stage Heat	240-1	30.0	124.0	155.0	175
0100FA01	048, 060 2-Stage Heat	480-3	10.0	12.0	15.0	15
0150FA01		480-3	15.0	18.1	22.6	25
0200FA01		480-3	20.0	24.1	30.1	35
0300FA01		480-3	30.0	36.1	45.1	50

LEGEND

MCA — Minimum Circuit Ampacity
MOCP — Maximum Overcurrent Circuit Protection
 (Fuses or Circuit Breaker)

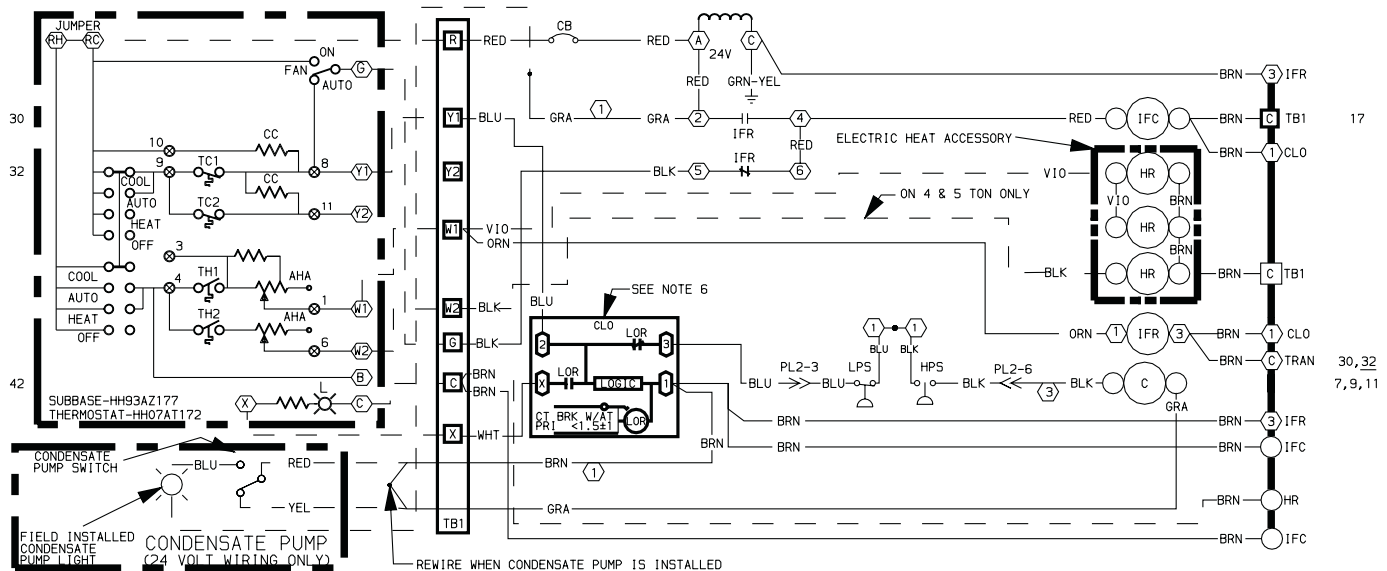
*May be field converted to single-phase units, see electric heat installation instructions.

NOTE: Separate power source is required for all heaters. See heater accessory installation instructions. Control from base unit 50AH (24 v).

Typical wiring schematic

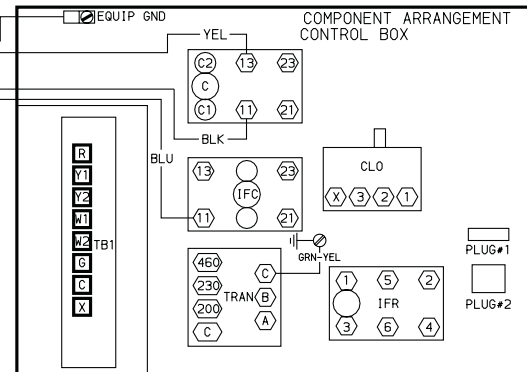


50AH036,048,060 — 208/230-3-60 UNITS



NOTES

1. COMPRESSOR AND FAN MOTORS ARE THERMALLY PROTECTED-THREE PHASE MOTORS PROTECTED AGAINST PRIMARY SINGLE PHASE CONDITIONS.
2. IF ANY ORIGINAL WIRES FURNISHED MUST BE REPLACED, IT SHOULD BE REPLACED WITH 90 C OR ITS EQUIVALENT.
3. NUMBERS INDICATES THE LINE LOCATION OF USED CONTACTS. A BRACKET OVER (2) NUMBERS SIGNIFIES A SINGLE POLE DOUBLE THROW CONTACT. AN UNDERLINED NUMBER SIGNIFIES A NORMALLY CLOSED CONTACT. PLAIN (NO LINE) NUMBER SIGNIFIES A NORMALLY OPEN CONTACT.
4. MUST USE THERMOSTAT HH07AT170, 172 OR 174 WITH SUBBASE HH93AZ176, 177 OR 179.
5. SEPARATE FIELD POWER SUPPLY REQUIRED FOR ELECTRIC HEATER ACCESSORY.
6. THE CLO LOCKS OUT THE COMPRESSOR TO PREVENT SHORT CYCLING ON COMPRESSOR OVERLOADS AND SAFETY DEVICES; BEFORE REPLACING CLO, CHECK THESE DEVICES.

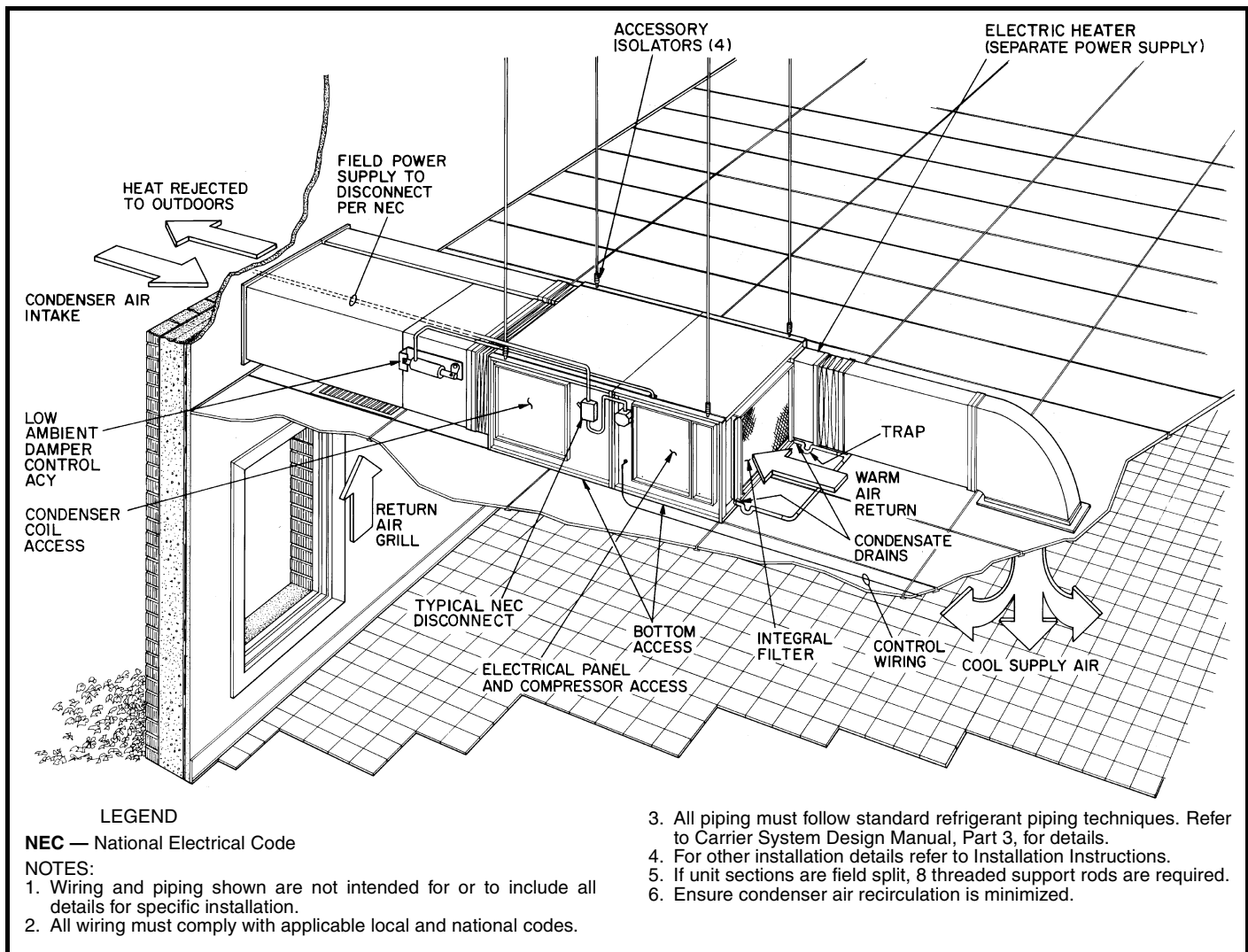


LEGEND

AHA	— Adjustable Heat Anticipator
C	— Contactor Compressor
CB	— Circuit Breaker
CC	— Cooling Compensator
CLO	— Compressor Lockout
CT	— Current Transformer
EQUIP GND	— Equipment Ground
HPS	— High-Pressure Switch
HR	— Heater Relay
IFC	— Indoor (Evaporator) Fan Contactor
IFR	— Indoor (Evaporator) Fan Relay
JB	— Junction Box
L	— Light
LOR	— Lockout Relay
LPS	— Low-Pressure Switch
NEC	— National Electrical Code
PL	— Plug Assembly
TB	— Terminal Block
TC	— Thermostat-Cooling
TH	— Thermostat-Heating
TRAN	— Transformer

	Marked Wire
	Denotes connection point between subbase and thermostat
	Terminal (Marked)
	Terminal (Unmarked)
	Terminal Block
	Field Splice
	Splice (Marked)
	Factory Splice
	Factory Wiring
	Accessory or Optional Wiring
	Field Control Wiring
	Field Power Wiring
	To indicate common potential only not to represent wiring

Typical piping and wiring



Application data

OUTDOOR-AIR TEMPERATURE OPERATING LIMITS (F)

UNIT 50AH		036	048	060
Without Head Pressure Control	Minimum	35	40	40
	Maximum	126	126	126
With Head Pressure Control	Minimum	0	0	0
	Maximum	126	126	126

Field splitting instructions — If components are split, maximum length of refrigerant tubing to be used is 50 ft, assuming components are installed in same horizontal plane. Condenser may be mounted up to 12 ft above evaporator. Liquid line tubing is 3/8-in. OD copper tubing, and discharge line is 1/2-in. OD copper tubing. For additional piping information, refer to Carrier System Design Manual, Part 3. Units should always be within line of sight from each other, or separate NEC (National Electrical Code)

disconnects will be required. Junction boxes should be installed in both the evaporator and condenser sections adjacent to D-shaped grommets, to provide a location to splice the outdoor-fan motor factory wiring (no. 16 AWG [American Wire Gauge], 4/64-in. thick insulation). Field wiring should be a minimum of no. 16 AWG, 4/64-in. thick insulation. Check all applicable electrical codes to ensure proper compliance.

Guide specifications



Indoor Packaged Unit

HVAC Guide Specifications — Section 15787

Size Range: **3 to 5 Tons, Nominal**

Carrier Model Number: **50AH**

Part 1 — General

1.01 SYSTEM DESCRIPTION

Indoor mounted, electrically controlled packaged horizontal cooling unit utilizing a hermetic type scroll compressor.

1.02 QUALITY ASSURANCE

- A. Unit shall be certified in accordance with ARI Standard 210.
- B. Unit shall be UL listed and carry a UL label.
- C. Unit shall be CSA approved (except 3 ton, 3-phase units).
- D. Unit shall be factory run-tested to ensure proper performance prior to delivery.

1.03 DELIVERY, STORAGE, AND HANDLING

- A. Unit shall be shipped completely assembled and ready to operate.
- B. Unit shall be shipped factory charged with R-22 refrigerant.
- C. Unit shall be stored and handled in accordance with the unit manufacturer's instructions.

Part 2 — Products

2.01 EQUIPMENT

A. General:

Factory assembled horizontal, single-piece, air-cooled, indoor, ceiling plenum mounted electric cooling unit. Contained within the unit enclosure shall be all factory wiring, piping, controls, refrigerant charge (R-22), and special features required prior to start-up.

B. Unit Cabinet:

1. Constructed of galvanized steel.
2. Interior shall be insulated with 1/2-in. thick neoprene coated fiberglass. Insulation shall be bonded to interior surfaces by sprayed water reduceable adhesive.
3. Equipped with 3 same side access panels and 2 bottom hanging removable doors to facilitate ease of maintenance. Side panels allow access to the control box, refrigeration components, and condenser coil. Control box shall be hinged allowing access to the compressor and pressure switches. Bottom doors shall allow access to and easy removal of the condenser and evaporator motors and blower assemblies.
4. Equipped with two 3/4-in. threaded condensate drain connections below the evaporator coil and one 3/4-in. threaded connection for condenser coil wash down. Connections shall be factory plugged for field removal.

5. Field splittable through the removal of 4 bolts and extending refrigerant piping and wiring to allow remote horizontal or vertical condenser mounting.
6. Unit shall have an integral hanging bracket requiring only 4 threaded rods (8 if unit is split) run to the top flange of the unit for hanging, eliminating need for external hanger brackets.
7. Contains junction box for power connection and opening for routing of control wiring.

C. Fans:

1. Evaporator:

- a. Blower shall be of the forward-curved, centrifugal, direct-drive type or belt drive (4 and 5 tons only).
- b. Motor shall have permanently lubricated bearings.
- c. Unit sizes 048, 060 shall be available with an optional 1.5 hp fan motor.

2. Condenser:

- a. Blower shall be of the forward-curved, centrifugal or belt drive type.
- b. Motor shall have permanently lubricated bearings.

D. Compressor:

1. Fully hermetic scroll type.
2. Mounted on suitable spring vibration isolators.
3. Equipped with internal line break protection.

E. Coils:

Evaporator and condenser coils shall be of non-ferrous construction with aluminum fins mechanically bonded to seamless copper tubes with all joints brazed.

F. Refrigerant Components:

Refrigerant components shall include:

1. Capillary tube feed system.
2. Refrigerant filter-drier.

G. Filter Section:

Filter section shall consist of factory-installed, permanent, cleanable air filter, removable from the same side as the access panels without the use of tools.

H. Controls and Safeties:

Control system shall include a high-pressure switch, a low-pressure switch, and a compressor lockout feature which upon tripping of any safety device shall prevent compressor from restarting until reset at the thermostat.

I. Operating Characteristics:

1. Unit shall operate using R-22 refrigerant.
2. Unit shall be designed for indoor suspended horizontal mounting and operation.



J. Electrical Requirements:

Unit shall have single point power connection to leads in terminal box.

K. Special Features:

Certain standard features are not applicable when the features designated by * are specified. For assistance in amending the specifications, your local Carrier Sales Office should be contacted.

* 1. Electric Heat Module:

- a. Provides encased heater elements that shall attach directly to the base unit discharge.
- b. Shall have bottom access.
- c. UL listed.

* 2. Thermostat Assembly:

Provides cooling and fan control. Standard sub-base shall include "Compressor malfunction light" designed to illuminate if compressor lock-out is activated.

* 3. Condensate Pump:

Unit shall be equipped with remotely located condensate pump. A field-installed light shall illuminate when reservoir rises above a preset level. Unit shall shut down upon reservoir light illumination.

* 4. Head Pressure Control Package:

Allows unit to mechanically cool down to 0° F ambient temperature. Package shall include damper operating device and all necessary hardware.

5. Vibration Isolation Package:

Shall provide 4 spring hangers for ceiling mounted unit to dampen vibration that may be transmitted to building structure.



Manufacturer reserves the right to discontinue, or change at any time, specifications or designs without notice and without incurring obligations.